Savannah River Site
Solid Waste Management Department
Consolidated Incinerator Facility
Operator Training Program

PROCEDURE OVERVIEW AND INTEGRATED OPERATIONS (U)

Study Guide

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Revision 00

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Training Manager / Date

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Engineering Manager / Date

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Facility Manager / Date

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REVISION LOG

REV.	AFFECTED SECTION(S)	SUMMARY OF CHANGE
00	All	New Issue.

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1. 2S Manual, Conduct of Operations, Procedure 1.1, *Procedure Administration*, (Rev 1, March 31, 1995.

2. 2S Manual, Conduct of Operations, Procedure 1.2, *Procedure Preparation,* (Rev 1, March 31, 1995.

3. 2S Manual, Conduct of Operations, Procedure 1.3, *Procedure Compliance,* (Rev 2, March 31, 1995.

4. 2S Manual, Conduct of Operations, Procedure 1.4, *Procedure Validation and Verification*, Rev 2, March 31, 1995.

5. 2S Manual, Conduct of Operations, Procedure 5.4, *Round Sheet Preparation and Use,* Rev. 0, September 1993

6. DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities,* Change 001, May 8, 1992.

7. WSRC SCD-2, ***Writers Guide for Technical Procedures***

8. DOE-STD-1029-92, *Writer's Guide to Technical Procedures*, September 1991

9. CIF On-Shift Briefing 9505, *Ash Receiving Tank Overflow Incident*, November 1995

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LEARNING OBJECTIVES

TERMINAL OBJECTIVE

1.00 Upon completion of this course and given the applicable procedures and references, **OPERATE** the Consolidated Incinerator Facility, to ensure the safe, and efficient control of the plant, systems, equipment and components.

ENABLING LEARNING OBJECTIVES

Upon completion of this course and given the applicable procedures the student will be able to:

1.01 **PROVIDE** a brief description of the background, philosophy, terminology organization, and use associated with facility procedures.

1.02 **DISCUSS** the procedure organization used at the Consolidated Incinerator Facility (CIF) include procedure types, designations, and approximate number in each category.

1.03 **DISCUSS** the organization of facility Standard Operating Procedure (SOP's) including the difference between System Operating Procedures, and Program Control Procedures.

1.04 **DISCUSS** purpose and organization of GOPs and what is meant by integrated operations and the relationship to DCS modes, facility modes and general sequence during transitional operations.

1.05 **DISCUSS** the facility periodic surveillance and operational rounds program, including purpose, organization, and regulatory drivers.

1.06 **DISCUSS** purpose and organization of CIF AOPs and EOPs and ARPs

1.07 **EXPLAIN** how the Facility System Status File (FSSF) is organized, how it related to facility procedures, and what needs to included in a filed package.

1.08 **EXPLAIN** the process of turning over a procedure in use to the oncoming or relieving shift.

1.09 **DESCRIBE** the types of procedure changes that are used in the CIF, and the general process for making the change

1.10 **DISCUSS** the major paths forward as presented in the CIF Procedure Improvement Plan (PIP).

INTRODUCTION

1.01	**PROVIDE a brief description of the background, philosophy, terminology organization, and use associated with facility procedures.**
1.02	**DISCUSS the procedure organization used at the Consolidated Incinerator Facility (CIF) include procedure types, designations, and approximate number in each category.**

Introduction to Procedures

Procedures are used throughout a facility to ensure the control, efficiency and safety of all operations. A procedure is nothing more than an ordered arrangement of individual steps or directions that are written to perform an operation or task. A procedure can be as simple as the instructions on a gas pump, guidance for the assembly of a bicycle, or directions on the side of a cake mix. A procedure can also govern complex operations such as the start up of a nuclear reactor the maintenance of a battleship, or assembly of jet airliner.

To more clearly define the general philosophy of procedures, lets look at two fundamental questions dealing with the existence of procedures

1. Why **must** we have procedures ?

2. Why do we **want** to have procedures?

First depending on the type of work being performed procedures may be required by law, contract or permit. These documents and many others under the regulation of the government or a subcontractor to the government may stipulate both the type of documents required for operations and the training necessary to use them in a safe and competent manner.

The highest tiered document in country for anything the government regulates or oversees is the Code of Federal Regulations (CFR) and associated Federal Registrar (FR). The code is like a handbook for how to run a country. The CFR is divided into 50 Titles that regulate everything from Banks to Parks and Forests.

Four of these Titles are of interest to the operations at the Consolidated Incinerator Facility(CIF)

- Title 10 Energy This title is subdivide into two major divisions nuclear Regulatory Commission(NRC) and Department of Energy (DOE)

- Title 29 Labor subparts 1910 and 1926 cover Occupational Safety and Health (OSHA) standards. 120 is Hazardous Waste Operations or (HAZWOPPER)

- Title 40 Protection of Environment The Enviromental Protection Agency (EPA) is the Governing Department -. Some of the laws under this division are Clean Air Act (CAA), Clean Water Act (CWA), Resource Conservation and Recovery Act (RCRA) and many others.

- Title 49 Transportation Although not very important to the CIF at this time, when the facility starts shipping drummed waste out for storage the labelling of waste will fall under the Hazardous Materials Transportation Act (HMTA).

The CIF is owned by and located on DOE property and therefore falls under the dual regulation of government departments. The DOE must also comply with statutes as laid out in the CFR. In order to meet minimum criteria and operate and a more conservative manner the DOE interprets CFR laws and regulations and develops its own policy to operate under. These rules and policies are called DOE orders. there are literally thousands of DOE orders covering all aspects of operations and management.

Westinghouse Savannah River Company (WSRC) subcontracts to the Department of Energy at SRS to manage and operate site facilities. As a private company WSRC also has its own policies and documents for managing and operating site facilities. these documents are written to follow and meet all the requirements of the DOE orders and are normally more conservative in nature when it comes to safety and compliance. Some examples of site manuals are 1Q -Quality - 8Q-Safety, 2S - Conduct of Operations and 4B Training

NOTE: many of the WSRC pertaining to operations of the facilities were revisions and conversions of the DuPont operating documents or DPSOP's and DPSOL's.

SRS has many facilities with diverse goals and functions, therefore WSRC has separate divisions to group similar facilities with common missions. This divisioning allows the use of common resources like personnel, equipment and operating documents. The CIF is in the Solid Waste Management Department (SWMD). The SWMD also has its own set of procedures. Such as Waste Information Tracking System (WITS), and Establishing Staging Areas for Storage of Hazardous Waste. The CIF and other facilities within the SWMD share some common interests and missions but may operate or function in very different manner. For example the CIF has very different operating requirements than the burial grounds. At each of these "levels" of management and regulation the need to have operating procedures gets more detailed more site specific. At each level of governing documents requirements are repeatedly reinforced.

Why do we **want** to have procedures ?

There are three main reasons that management and personnel want procedures.

1. Worker Health and Safety Procedures list safety precautions, special required protection equipment and incorporate information from past lessons learned. These features greatly decrease the probability of workers being hurt or disabled during work evolutions.

2. Enviromental Compliance (Liability) Any discussion regaurding present day operations dealing with enviromental compliance to licensed or permitted facilites must include a discussion of Liability. Many enviromental laws and regulations such as Resource Conservation Recovery Act (RCRA) and Clean Water Act (CWA) have statutes that hold not only corprations and management legally responsible for any known disreguard to its provisions, but can also apply to individual workers. Compliance to approved procedures can normally eliminate the chances of exceeding permitted requirements.

3. Efficiency by standardization Performing a process or action in the same manner or to the same standards all the time produces an end result that is predictable and consistant. When a system is aligned and placed in service according to the same procedure each time operating personnel and management can be assured that component status is in its designed configuration, and will respond as desired.

Procedure Groups or Types

Procedure types are varied and numerous. Procedures can be written to cover a broad range of operational requirements, and managing policies. Some of the generic types of procedures and operating instructions used at plants, and facilites are listed below.

Administrative Procedures

These procedures are normally written to state and standardize program and / or policy requirements of issues. Administrative procedures are used to govern the non-operational aspects of the facility such as personnel rules, facility records, training requirements for operators and technical staff, organizational responsibilities, etc.. These procedures are not intended to govern the operation of physical equipment or systems. Administrative procedures can be written on subjects as vast as corporate hiring policy, or can be as specific as the control and issue of radios or keys at individual facilites. Other examples of administrative type procedures might document waste tracking, ordering of supplies, minor spill prevention and response, or the scheduling of other procedure performance, such as equipment rotation to distribute equipment run time among redundant components.

Maintenance Procedures

Maintenance procedures are the sequenced steps used by maintenance personnel to perform planned, preventive and restorative maintenance on the facility equipment and components.

Special Procedures

Special procedures are those that govern non-routine operations such as testing, initial startup, or operation outside of established process parameters or boundaries. Special procedures are normally written for one time use and therefore expire at the completion of the task.

Periodic Procedures

These procedures are performed at routine intervals as governed by a predetermind schedule and are normally documented as completed. Procedures required by an offsite regulatory agency, by an operating permit, are normally defined as surviellances. These procedures may have operating restrictions if not performed in a timely manner or if acceptable criteria is not met. Other periodic type procedures are PM’s or preventative maintenance procedures to verify and ensure proper calibration and continued operation of equipment. Operator inspections (or rounds) are used for immediate evaluation of equipment and system operation. to document operating parameters for trending history files. These files may be used by enginering, management, or technical advisors to evaluate proper operation according to design criteria.

Operating Procedures or Instructions

Operating procedures are used for the physical operation of components and systems. These procedures are written to govern transition of equipment from shutdown status to operating and vice versa. They also include instructions for normal steady state operations.

Startup instructions include initial alignment of system, fill and vent, and placing in service for operation.

Steady state operations include batch type process operations like tank transfers and routine equipment swapping for maintanence or PM's.

Shutdown operations include removing a system or component from service, depresurizing and draining of systems and configuration of equipment for maintenance

Normal operating procedures are divided into two divisions with different scopes of operations.

1. System procedures are the workhorses of the procedure family they direct the startup/shutdown and steady state operations of individual systems. These procedures are self contained and independent of any other system procedure

2. Facility procedures are the backbone of any procedure program. They coordinate sequence and integrate all the system procedures as required to obtain desired overall facility status ie shutdown or operating. during any facility status at least one facility procedure will be use.

Off-Normal Operating Procedures

Off-Normal Operating procedures are documents written as guidance of equipment operations during times of unplanned operating constraints such as equipment failures, human health and safety concerns or other external influences.

In general emergency procedures such as Emergency Plan Implementaion Procedures (EPIP's) and Emergency Operating Procedures (EOP's) are used when human health or safety is in danger, or has already occured, and are facility wide in scope. Danger to health may also include release's to enviroment which may have long term effects. Emergency procedures may also be used if catastrophic equipment damage is predicted.

Abnormal Operating Procedures are normally system specific and are used during anticipated occupational occurances where systems have exceeded normal design parameters due to dquipment failure or human error. These procedures are developed to bring the system back to normal configuration and status if possible shut the system down if necessary

Alarm response Procedures are alarm specific. They are generally either component and/or parameter specific, although some may be witten for common alarms such as a remote alarm

panel which would have separate ARP's. ARP's are initiated when a parameter has exceeded limits or is trending towards a limit, or if a change of status has occured such as a pump stopping unexpectedly. ARPs normally give specific information as to setpoints of alarm initiating instrument, equipment location, and probable causes. These procedures give guidance on how to trend parameter back towards desired range or direct personnel to another document such as an AOP.

The types of procedures developed for CIF operations are listed as follows:

- System (Standard) Operating Procedures (SOPs)
- General Operating Procedures (GOPs)
- Emergency Operating Procedures (EOPs)
- Abnormal Operating Procedures (AOPs)
- Alarm Response Procedures (ARPs)
- Surveillance Procedures (SURs)
- Operator Roundsheets (ORs)
- Regulatory Round Sheets (RORs)

Procedure Terminology

Procedure- a set of established forms or methods, for carrying on affairs, as a course of action to perform or effect something.

Procedure **Hierarchy** is the authority, rank, or grade that one procedure has with another. It establishes precedence and order when organizing.

requsite - required

Prerequsite - required as prior condition

Procedure **Transition** is the act or process of changing from one procedure to another. Transition is most common when directing attention to or from facility procedures

PROCEDURE GROUPS

1.04	**DISCUSS purpose and organization of GOPs and what is meant by integrated operations and the relationship to DCS modes, facility modes and general sequence during transitional operations.**

General Operating Procedures (GOPs)

Procedures are used in CIF to coordinate the start up and shutdown of the incinerator and various process and support systems. The procedures are written to allow smooth, safe and efficient transition from one facility configuration (referred to as modes of operation) to another. This section will address how the procedures are used and integrated to coordinate facility operation.

As previously mentioned, GOPs are used to sequence the start up and shut down of the facility by the performance of SOPs. The GOPs direct the performance of SOPs and alert the operators to changes in the DCS and facility modes of operation.

GOPs are used to coordinate complex activities such as the start up of the facility. GOPs can be considered as checklists or sequences of SOPs used to perform an integrated, multi-system operation.

The layout of the GOPs is identical to the layout of the sections in the SOPs. As previously mentioned, GOPs coordinate the integrated performance of SOPs required to place the facility in the various operating modes. Therefore, the majority of the steps in the GOPs are directing the operators to perform SOPs. At the completion of the steps, the facility equipment and controls are switched from one mode of operation to the next sequential mode.

When transitioning from one GOP to another, there are several considerations that the operators must be aware of. Several of these are listed as follows:

- Lockouts - L/T logs must be reviewed to verify that no equipment to be operated is removed from service and locked or tagged out
- Facility System Status File (FSSF) - file must be current and reflect system status will support performance of facility start up or shutdown
- SOPs in progress - any supporting SOPs for the GOP or other SOPs being performed must be completed or in a state of completion that will allow performance of GOPs
- Temporary Modifications - the log must be reviewed to verify any temporary modifications have been completed or will not effect procedure performance
- Maintenance - no maintenance work in progress or completed will impact procedure performance

There are five GOPs. Their titles and purposes are listed as follows:

GOP-01 - Process Startup From Cold Standby to Warm Standby

This procedure is used to align and place support systems in place in preparation for incinerator start up and to perform initial ignition and warm-up of the incinerator. In Section 4.1, *Facility Auxiliary Startup*, 23 SOPs associated with this GOP are used to align and start support systems. In Section 4.2, *Incinerator Auxiliary Preparation Line-Ups*, 13 SOPs are associated with the alignment of the waste systems to the incinerator. In Section 4.3, *Pre-Operational Checks*, the prerequisites for incinerator ignition are performed. In Section 4.4, *Incinerator Auxiliary Startup*, the Offgas System is started up to support initial ignition of incinerator. The ignition is accomplished by performing INC-01, *Incinerator Startup From Cold Standby to Warm Standby*.

GOP-02 - Process Startup From Warm Standby to Normal Operations

This procedure brings the temperature of the incinerator up from warm-up to the normal operating temperature. In Section 4.1, *Introduction of Waste to the Rotary Kiln*, 5 SOPs are performed to align the waste feeds to the incinerator. In Section 4.2, *Establish Ash Handling Operations*, the ash removal and disposal systems are started up.

GOP-03 - Normal Operations

This procedure allows the performance of the 8 waste systems SOPs to support the burning of waste and fuel for incinerator operations. The facility is fully functional at the time this procedure is being performed.

GOP-04 - Process Shutdown From Normal Operations to Warm Standby

This procedure directs the shutdown of waste feed to the incinerator and the gradual cooling down of the temperature. In Section 4.1, *Terminationís of Waste Feed for Normal Shutdown*, 5 waste systems SOPs are performed to isolate and take the systems out of service.

GOP-05 - Process Shutdown From Warm Standby to Cold Standby

This procedure shuts down the support and process systems required for incinerator operation and directs the cooling of the incinerator temperature to ambient. In Section 4.1, *Preparation for Cold Standby Mode Entry*, 36 SOPs are performed to remove process and support systems from service.

CIF and Modes of Operations

Facility modes are conceptial breaks or divisioning of the operations required to transition from a fully shutdown condition to a fully functional and operating condition. These divisions are normally in between major milestones in facility operations or whre regulatory requirements may become more stringent. They are provided to have logical breaks where management can evaluate continued operations based on equipment condition and requirements. As seen in the GOPs description, procedure performances are coordinated to provide safe, efficient and ordered transitions from the different facility modes of operation.

DCS Alarm Modes

The DCS modes correspond to the facility modes for the purpose of determining which process parameters need to be monitored during the various states of operation. Changing DCS mode configuration when changing facility modes enables and/or disables alarms or indications. This prevents spurious alarms from being received in the control room and unnecessarily distracting the operators. DCS modes are changed on the ALARMS Section of the keyboard. Mode selector pushbuttons are provided for Modes 1 through 4 but Mode 4 is not presently configured for use.

The facility modes are identified as follows:

Mode 1 - Normal Operations (DCS Alarm Mode 1)

The mode in which the process systems are capable of performing their intended function. The facility is in this mode when the incinerator is at normal operating temperature.

Mode 2 - Warm Standby (DCS Alarm Mode 2)

The facility condition where the incinerator temperature is hot (normally above 600°F). The facility is capable of burning wastes but is not due to temperature, activities being performed, or maintenance.

Mode 3 - Shutdown (DCS Alarm Mode 3 ?)

The facility condition where the incinerator temperature decreasing or at ambient. The facility is not capable of burning wastes. This mode is not identified per procedures nor is it normally documented in the facility status files.

Mode 4 - Cold Standby (DCS Alarm Mode 3)

The facility condition where the process systems are incapable of performing their intended function. Incinerator is cooling or at ambient temperature.

1.03	**DISCUSS the organization of facility Standard Operating Procedure (SOP's) including the difference between System Operating Procedures, and Program Control Procedures.**

System (Standard) Operating Procedures (SOPs)

SOPs govern routine evolution is such as starting up, operating and shutting down of equipment and components. At the CIF SOP's also govern the control of the various facility specific administrative evolution's such as waste acceptance, labeling of waste drums, etc.

SOPs are arranged to give the operator directions and the required background information needed to perform routine plant and equipment operations. There are eight identifiable sections in an SOP. They are as follows:

Heading

There are two distinct headings: the title heading and the normal heading. The title heading, which only occurs on the first page of the procedure, includes the procedure number, procedure title, revision level, approval date, category, manual number, responsible organization, and the page number (also showing total pages). Normal headings, which occur on all pages subsequent to the title page, includes the procedure number, revision level and page number showing total pages.

Front Matter

The front matter is standardized material on all SOPs. It includes a representation of the revision bar, controlled procedure index verification signature, and instructions and warnings for discontinuing the procedure.

Section 1.0, Purpose

This section identifies what may be accomplished by performance of the procedure or applicable performance sections of the procedure.

Section 2.0, Scope

This section identifies the facility and the specific area within the facility that the procedure applies to.

Section 3.0, Information

This section includes the table of contents of the performance sections, terms and definitions applicable to the procedure, responsibilities associated with procedure performance, any references for development and performance of the procedure, safety considerations, radiological and contamination considerations and precautions, quality assurance references, general information about the system equipment or components affected by procedure performance, and prerequisites that need to be accomplished prior to procedure performance. This section, also, identifies the requirements for maintaining completed copies of the procedure or completed sections as well as stating the requirement for updating the Facility System Status File (FSSF) when procedure has been completed

Section 4.0, Procedure

This section includes the section performance determination and the applicable sections of the procedure to be performed. All sections have signoffs required upon satisfactory completion.

The new revisions to the SOPs are in a two-column format. The left hand column contains the steps to be performed. The right hand column gives a short description of the reason for performance or supplemental information applicable to the step.

Section 5.0, Attachments

When applicable, this section normally includes alignment checklists for system configuration and arrangement to support or precede the performance of the procedure or applicable sections of the procedure. The checklists will include, as a minimum, the component line identification (CLI) number, any referenced drawings or prints (if applicable), component noun name, and a sign off block for the performers initials. Completion and review signatures are normally at the end of the checklist.

Attachments can also be used for diagrams, logs, or additional information for procedure performance.

Section 6.0, References

This section documents the material that was used in the development of the procedure such as State or Federal codes/regulations, drawings, manuals, or other procedures.

INCs

Where GOPs are used to coordinate the sequence of facility operation, INCs are used to coordinate incinerator operation. INCs or portions of INCs are performed by direction of the steps or sections in the GOPs.

There are four INCs. The titles and purposes are listed as follows:

INC-01 - Incinerator Startup From Cold Standby to Warm Standby

This procedure addresses the alignment, initial ignition, and gradual warm-up of the incinerator.

INC-02 - Normal Operations

This procedure addresses the normal operation of the incinerator to include alignment and startup of waste feed to the icinerator.

INC-03 - Incinerator Normal Shutdown

This procedure addresses the waste feed shutdown, cooldown, and purging of the incinerator and waste feed systems.

INC-04 - Mandatory Incinerator Shutdown

This section addresses the conditions and regulations requiring waste feed cutoffs and/or incinerator shutdown.

INC-05 - Emergency Shutdown

This SOP is presently being converted into and AOP

1.06 DISCUSS purpose and organization of CIF AOPs and EOPs and ARPs

Emergency Operating Procedures (EOPs)

EOPs (Emergency Operating Procedures) are developed to mitigate events that would result in operation outside the facility safety envelope. These events are identified by engineering evaluation from the design basis events in the facility Safety Analysis Report.

EOPs are similar AOPs. EOP sections are as follows:

Heading

As with the AOPs, there are two distinct headings: the title heading and the normal heading. The title heading, which only occurs on the first page of the procedure, includes the procedure number, procedure title, revision level, category, manual number, effective date, and the page number (also showing total pages). Normal headings, which occur on all pages subsequent to the title page, includes the procedure title, procedure number, revision level and page number showing total pages.

Front Matter

The front matter documents the change(s) from the previous revision.

Section 1.0, Entry Conditions

This section identifies what plant conditions caused the EOP entry. It includes as description of the abnormal occurrences as well as identifies any alarms that may have been received as a result of the abnormal conditions. EOP entry conditions may also have been dictated through the performance of ARPs, AOPs, or another EOP.

Section 2.0, Immediate Operator Actions

The Immediate Actions are those that are performed to mitigate the abnormal conditions and place the plant in a safe condition.

Section 3.0, Subsequent Operator Actions

Subsequent actions may include restoration of the facility to operating status, notification of cognizant technical functions (i.e. Maintenance, RCO, IH, etc.).

Both the immediate and subsequent actions sections are written in the two column format. The left hand column contains the steps to be performed. The right hand column gives a short description of the reason for performance or supplemental information applicable to the step.

Abnormal Operating Procedures (AOPs)

AOPs are used to direct operator and plant responses to unplanned or unusual activities or processes. The intent of the AOPs is to return or place the facility in a safe condition or status following the unplanned or unusual event.

AOP layout is similar to SOP layout but there are several unique differences. The AOP sections are as follows:

Heading

As with the SOPs, there are two distinct headings: the title heading and the normal heading. The title heading, which only occurs on the first page of the procedure, includes the procedure number, procedure title, revision level, category, manual number, effective date, and the page number (also showing total pages). Normal headings, which occur on all pages subsequent to the title page, includes the procedure title, procedure number, revision level and page number showing total pages.

Front Matter

The front matter documents the change(s) from the previous revision.

Section 1.0, Entry Conditions

This section identifies what plant conditions caused the AOP entry. It includes as description of the abnormal occurrences as well as identifies any alarms that may have been received as a result of the abnormal conditions.

Section 2.0, Operator Actions

This section identifies the operator responses to the abnormal conditions. There are two sections, Immediate Actions and Subsequent Actions. The Immediate Actions are those that are performed to mitigate the abnormal conditions and place the plant in a safe condition. Subsequent actions may include restoration of the facility to operating status, notification of cognizant technical functions (i.e. Maintenance, RCO, IH, etc.).

Section 2 of the AOPs is also written in the two column format. The left hand column contains the steps to be performed. The right hand column gives a short description of the reason for performance or supplemental information applicable to the step.

Section 3.0, Appendices

This section identifies any supplemental or additional information useful for mitigation of the abnormal conditions.

Section 4.0, Attachments

When applicable, this section normally includes alignment checklists for system configuration and arrangement place the facility in a safe configuration. Attachments can also be used for diagrams, logs, or additional information for procedure performance.

Alarm Response Procedures (ARPs)

ARPs are used to respond to plant alarms or abnormal indications. An ARP is constructed to identify the alarm or indication received and return the plant to a safe or standby status. ARPs usually reference the operators to either an SOP or AOP for the complete restoration of the facility.

ARPs are used to respond to equipment alarm conditions. ARP sections are as follows:

Heading

There are two headings: the title heading and the alarm identification. The title heading includes the procedure number (which includes the DCS point tag number), alarm classification, revision level, manual number, effective date, and the page number (also showing total pages). The alarm identification includes a representation of the alarm window message, the alarm setpoint, the DCS point tag number associated with the alarming equipment or component, the field device and the remote device.

Operator Actions

This part contains the following three sections:

Section 1.0, Alarm Confirmation

This section gives appropriate instruments or indications that can be used to verify the alarm condition.

Section 2.0, Automatic Functions

This section identifies the facility systems or equipment that will actuate without operator action based upon the activation of the alarm.

Section 3.0, Corrective Actions

This section identifies the operator responses that are taken to mitigate the alarm condition.

All these sections are written in the two column format. The left hand column contains the steps to be performed. The right hand column gives a short description of the reason for performance or supplemental information applicable to the step.

Probable Causes

This part shows the causes of the alarm condition (in order of probability of occurrence).

References

This section documents the material that was used in the development of the procedure.

Attachments, Appendices, etc.

These sections may be added as required to mitigate the alarm condition.

1.05	**DISCUSS the facility periodic surveillance and operational rounds program, including purpose, organization, and regulatory drivers.**

Surveillance Procedures (SURs) and Operator Roundsheets (ORs)

Surveillances and Roundsheets are similar in construction to SOPs. Surveillances, because they are routinely performed for safety, design, or regulatory requirements, have specific acceptance criteria identified. Supervision must be notified any time that these criteria are exceeded. Round sheets have required ranges or limits for equipment parameters monitored that require additional entries. Round sheet performance will be discussed later in the guide.

Surveillance Procedures (SURs)

SURs are used to document the performance of inspections, monitoring of plant parameters, or completion of required surveys of plant equipment and components associated with mandated or regulated criteria. The mandates or regulations are normally associated with outside agencies that govern facility operations or facility safety requirements associated with the design and authorization basis.

Operator Roundsheets (ORs)

ORs are used to document and record plant equipment operation on a routine basis. Round sheets are useful tools for monitoring plant operating characteristics, performing equipment operating analysis, trending both plant and equipment efficiency, and planning required and predictive maintenance.

Regulatory Round Sheets (RORs)

RORs are used to document the performance of inspections, monitoring of plant parameters, or completion of required surveys of plant equipment and components associated with regulatory criteria. Similar to SURs, RORs are required by outside agencies that have permitting authority over the facility.

PROCEDURE PERFORMANCE

1.07	**EXPLAIN how the Facility System Status File (FSSF) is organized, how it related to facility procedures, and what needs to included in a filed package.**
1.08	**EXPLAIN the process of turning over a procedure in use to the oncoming or relieving shift.**

Introduction

Procedures are to be used only by trained, qualified personnel. A trainee or watchstander under instruction may use the procedures only under the direct supervision of qualified watchstanders or supervision.

Initiating Procedure Performance

Before beginning the performance of a procedure, the procedure user (or designee) obtains a copy of the procedure and/or the associated data sheets from:

- A designated storage location
- The computerized procedure issue system
- A satellite Document Control Station

The user compares the procedure with the Controlled Procedure Index to ensure it is the latest revision and includes all immediate procedure changes. If the revision status has changed, the user obtains a copy of the new revision. Finally, the user ensures the procedure contains the correct number of pages.

Prior to procedure performance, the user or users must review and understand the entire procedure, paying particular attention to precautions, limitations and prerequisites sections. All of the prerequisites must be met or verified.

Permanent black ink is used to make all procedure entries, except as allowed by this procedure. All procedure entries must be legible. If required, duplication of classified documents is to be done in accordance with procedure manual 7Q, WSRC Security Manual.

If steps are required to be repeated in the performance of a procedure, and it is necessary to record data or to document performance, then copy as many data sheets as necessary to record each performance and identify the order of performance on each page (e.g., Page 25A of 30, Page 25B of 30).

The performance of the procedure will be suspended if any of the following exist or occur:

- unexpected results

- abnormal conditions
- the procedure is inadequate
- components found out of position (e.g., valves, switches, etc.)
- two or more procedures governing the activity conflict

If validity of a step is in doubt, stop the procedure and notify supervision.

The absence of sign signoffs within a procedure does not alter the requirement for verbatim procedure compliance. Comply with procedures during the performance of an activity. The user should anticipate the results of each step before taking the required action.

The user must perform procedure steps and sections sequentially unless procedural guidance indicates otherwise. Perform each step as written. The use of check marks, or the like, in procedure margins is an acceptable method for placekeeping, if desired.

Initial, check or sign the procedure if required. Document the procedural step upon completion in the space provided. Initial and date any explanatory notes or information entered on a procedure.

The last procedure user shall ensure the following before submitting the completed procedure to supervision for review:

- All required sign off blanks have been completed.
- All attachments and data sheets required by the procedure are attached and complete.
- All procedure signature statements have been signed and dated as required.
- All procedure requirements have been met.
- All calculations are correct.
- Acceptance criteria, if any, have been satisfied.

Completed procedures include any that have been terminated or suspended, which will not be resumed or continued.

If a "completed by" statement is provided and more than one person is using a procedure or section, then the last user signs and dates the "completed by" statement. If a procedure directs the user to complete steps or sections from another procedure, retain the completed steps or sections of the other procedure with the referencing procedure.

When all these steps have been satisfactorily completed, the procedure is submitted to supervision for review. A procedure is not considered performed and complete until the results or acceptance criteria have been reviewed and approved by supervision. Supervision should review procedures, preferably before the end of the shift in which the procedure was performed, but before the end of the next shift, to ensure:

- procedure has been performed in accordance with Manual 2S requirements
- resolution of any discrepancies or omissions has occurred

- all entries are legible and entered correctly
- calculations performed in the procedure or attachments are correct
- acceptance criteria has been met or evaluated
- identified problems are dispositioned and appropriate corrective actions have been initiated
- reports or notifications required by identified problems or procedural requirements have been performed

If an error is found during the supervisory review of a completed procedure, then supervision will:

- investigate, evaluate and determine corrective actions, if necessary
- record a narrative entry in the margin, bottom of page, etc., of the procedure or log to explain the reason for the error and the shift manager's direction
- enter the date and time of the narrative entry, and initial the entry

The supervisor will then sign, initial and date the "Reviewed by" statement indicating performance of the review and the adequacy of the procedure completion. The completed procedure is then forwarded to Records, if required.

Facility Management reviews selected completed procedures on a random basis, and enters initials and date next to the reviewing supervisor's signature.

Verbatim Compliance

Whenever technical and/or response procedures are performed, verbatim compliance with the procedure is mandatory. This means the procedure shall be present and in use and each step is performed as written. Initials and/or sign-signoff is shall be made, where required, at the time the step is performed. Operators should also be aware of changing equipment conditions and indications during procedure performance. Blindly following procedures when equipment parameters are out of limits or equipment is malfunctioning can lead to the facility, systems or equipment being placed in an unsafe condition.

Completion Indicators

Completion indicators commonly used in procedures include, but are not limited to, Not Applicable (N/A), Out of Service (OOS), Standby (STBY), No Reading Taken (NRT), and None or No Further Entries. The use of completion indicators to bypass or complete required procedure steps is not allowed. Completion indicators are routinely used to fill in data tables or make entries into applicable steps. Completion indicators uses are listed as follows:

N/A

N/A may be used when:

- When a provided conditional step (WHEN,...THEN, or IF, ...THEN) condition is not met
- When procedural guidance states such
- When a choice of steps is given, the non-selected or non-completed steps may be indicated as N/A (Starting only one of three pumps, fans, etc.)

If procedural guidance permits, it is permissible to N/A sections or groups of steps by :

- Drawing a box around the affected steps
- Draw a large “X” filling the box
- Enter N/A in the box

STBY

STBY is used when equipment or components are not presently in use but are capable of being used.

OOS

OOS is used when the equipment is not in service nor capable of being operated. OOS equipment is identified on routine rounds and surveillanceís by a red circle and a description of the reason should be included in the narrative sections of the logs.

NRT

NRT is used if the equipment is inaccessible for monitoring. Log entries are made similar to those for OOS equipment.

If all equipment on one particular sheet of an operating log or roundsheet are STBY, OOS or NRT, then lines may be used to indicate multiple readings.

NONE or NO FURTHER ENTRIES

If a procedure directs the operator to enter information for certain conditions and the conditions do not exist, the NONE is entered in the applicable space.

If the data or readings collected do not fill up the applicable spaces provided, then:

- A single line is drawn underneath the last entry
- NO FURTHER ENTRIES is written on the line
- The entry is initialed and dated.

Abnormal or Incorrect Data

If data obtained during the performance of a procedure is out of limits as specified by the procedure, the following actions are taken:

- Condition is immediately reported to supervision
- Condition is corrected per direction of supervision, the procedure, or operator qualification on the system or equipment
- Abnormal data or value is recorded
- The reading is circled in red ink
- Procedure continuance will be determined by supervision
- Corrective action(s) are recorded in narrative sections of logs and roundsheets
- Narrative entries are initialed, time is entered, and entry is dated

Incorrectly recorded data or entries that do not affect the subsequent procedure steps require the following correction:

- Notify supervision for determination of procedure suspension, repeat of step(s), or continuation
- Draw a single line through the entry
- Enter correct information
- Initial and date entry

If the entry affects completion of the procedure or subsequent steps, the performance of the procedure is suspended.

Procedure Turnover

If a procedure is being performed and the oncoming shift is receiving a turnover, the off-going shift will perform the following:

- Brief the oncoming shift on the status of the procedure and effected systems, equipment, etc.
- Document the procedure number and the last step completed in the narrative logbook
- Draw a horizontal line in the right hand margin at the step the procedure was stopped
- Enter initial, time and date next to the line

When the oncoming shift continues with the procedure, they must verify that all prerequisites are still met and the status of components manipulated in the procedure are in the required positions.

Procedure Suspension

Procedure suspension can be caused by any of the following conditions:

- Unexpected results
- Abnormal conditions
- Procedure inadequacies exist
- Components or equipment are found out of required positions or configuration
- Procedures governing the activity/activities are in conflict

If any of the following conditions exist, then the procedure is suspended by performance of the following:

- Procedure performance is stopped
- Supervision is notified
- Supervision directs appropriate follow-up actions to place the facility in a safe condition
- Supervision will determine whether to modify the procedure to allow continued performance or whether to halt performance

If the suspended procedure is resumed, the following actions must occur:

- Prerequisites are verified as still being met
- Procedure verified to be current and containing all IPCs
- Steps verified or repeated per direction of supervision

If the suspended procedure is not to be resumed, the following actions must occur:

- Procedure number, last step completed and narrative entry for reason(s) to not continue procedure are documented in applicable logs
- Horizontal line is drawn in the right hand margin at the last step completed
- Initials, time and date, and reason for not continuing procedure are entered next to the line

Safety

At any time an operator performing a procedure feels that actions performed in a procedure will lead to an unsafe condition, personnel hazard, equipment damage or release to the environment, supervision is notified. If the operator feels that the guidance or direction of supervision will not remedy the unsafe action and supervision insists on continuing with the procedure, the following actions are taken:

- Facility is placed in a safe condition
- A log entry is made containing the following:
  - Instructions that are considered unsafe
  - Name of individual providing the instructions
  - Operators stated safety concern
  - Reason(s) for the concern
- Procedure performance is suspended
- Next level of supervision is contacted for direction
- If proper resolution is still not obtained, Facility Manager is contacted

All safety concerns shall be resolved by management and supervision on an urgent basis

Reader Worker Method

In the event of procedure performance where having the procedure in hand while performing steps could be unsafe or physically difficult, the reader/worker method may be used. The requirements for this method are as follows:

- Both the designated reader and worker must review and understand the procedure prior to performance
- The reader shall be positioned as close to the worker as safely permissible (entering a contamination area is not required for the reader)
- The reader and worker shall establish adequate communications (i.e. radio, face-to-face, telephone, etc.)
- The reader reads each step, note, warning, and caution and the worker repeats back to ensure understanding (paraphrasing is acceptable)
- The worker reports completion of each step and the reader marks the procedure appropriately

Procedure Use in Contaminated Areas

Two methods are acceptable in contaminated areas; the reader worker method or a duplicate copy may be used. The reader/worker method is preferred. If the duplicate copy method is used, the performer carries a duplicate into the contaminated area and completes it as required. When the work is complete, all material on the duplicate will be transcribed onto the use copy. When the transcription is complete, the duplicate copy is disposed of.

If the duplicate copy becomes contaminated, Radiological Controls Operations (RCO) is notified. The duplicate copy is handled in accordance with prescribed procedures for contaminated waste and an entry is made in the narrative section of the use copy that the duplicate was destroyed.

Performance of Rounds

Round sheets provide operators with guidance on the extent to which equipment and areas should be inspected during routine tours. The recording of key equipment parameters during tours provides a record of equipment performance and can be used to reconstruct events leading up to abnormal operating occurrences or system malfunctions. This record permits short-term trending by operators and supervisors so that undesirable trends and equipment problems can be identified and corrected. In addition, this record also permits long-term trending by maintenance and system engineers so that corrective, preventive, and/or predictive maintenance programs may be adapted to maximize equipment reliability.

Round sheets also facilitate operator turnover of equipment status and aid in the training and qualification of new operators. Therefore, it is critical that the operators frequently tour their area of responsibility and understand the significance of all parameters observed.

Personnel performing rounds must comply with all facility safety rules and exercise caution around rotating equipment and in other hazardous environments so as not to place themselves in a situation in which they may be exposed to personal injury.

Data shall be recorded at the time(s) or frequency specified on the round sheets. When round sheet data is not obtained within one hour from the time(s) or frequency specified on the round sheet, the actual time the data was obtained should be noted on the round sheet. Shift supervision shall be notified of the missed round and an explanation entered in the narrative section of the round sheet or logbook. Evaluate the data as soon as possible for potential out-of-limit conditions that may have occurred during the period missed. Rounds should be completed prior to the scheduled start of the next set of readings.

The operator making the entries completes and signs narrative section of the round sheet in accordance with the guidelines for log keeping. The narrative section entries should include a description of significant events occurring, major evolutionís, causes of abnormal conditions, actions taken to correct abnormal conditions, and indications that supervisors have been notified where appropriate.

Personnel performing rounds must be continuously alert for the following conditions and/or indications:

- Fire hazards
- Smoke or unusual odors
- Improper storage of flammable
- Improperly barricaded radiological controlled areas
- Improperly barricaded tripping and bumping hazards
- Spills
- Leaks or other discharges
- Exposed rotating equipment and electrical wiring
- Unusual noises or vibrations

Personnel shall notify supervision immediately of any such hazards and take immediate steps to eliminate or barricade these hazards whenever possible. If any equipment deficiencies are found, they should be documented in accordance with the facility maintenance work control system. Additionally, operators shall periodically inspect equipment and areas not included on the round sheets, but within their work station.

Operators will maintain equipment operating parameters within limits in accordance with the specific instructions for each round sheet. Personnel performing rounds must be aware of the rate at which parameters are changing or should be changing such that action can be taken prior to a limit being reached.

When monitoring and alarm equipment is inoperable, use alternate equipment if available. If alternate equipment is not available, then increase the frequency of visual surveillance of the equipment being monitored.

Whenever equipment is started, immediately begin continuous visual monitoring of its associated data points until the data points stabilize. Note the equipment starting time in the narrative section of the round sheet. After the data points have stabilized, record the specified parameters on the round sheets. If data points appear to be heading out of limits, notify supervision immediately and be prepared to shut down the equipment. During the performance of rounds, personnel should determine the status of their equipment, as to best respond to potential problems that may occur during his/her shift.

Personnel should practice good housekeeping while performing rounds. Keep the facility in as good or better condition than found. Each operator keeps his/her areas of responsibility clean and orderly. Personnel must attempt to correct any minor housekeeping deficiencies noted while performing rounds. Report major deficiencies to supervision.

During the performance of rounds, personnel will have available (in their possession or at their shift operating base) completed round sheets which allow for identification of trends. The number of completed round sheets in their possession should cover a time period sufficient to obtain a genuine trending period. For instance, during the performance of rounds using a weekly round sheet, the operator should have available, in their possession or at their shift operating base, the completed round sheet for the previous week in addition to the current weekly round sheet. For daily round sheets, the previous day's round sheet should be in their possession or at the operating base.

When round sheets are commenced for a "new" time period, then the oldest completed round sheet(s) is forwarded by the shift manager to the facility operation manager to be filed in accordance with the requirements of this procedure.

Operators should avoid, where possible, recording process values from chart recorders onto round sheets unless the recorder is the only available monitoring instrument. Chart recorders provide a quick indication of changes in a parameter and the rate of change. They are generally not designed for precise measurement.

Perform rounds and complete round sheets in the following manner:

- Enter the actual data value obtained for those parameters that require recording specific units of measurement.
- Enter "Standby" (STBY) for data points or equipment that is not operating and is available for operation if required. A STBY entry should not be made until the end of the time period for the current round. This allows recording the data if the equipment is started before the next round. Data limits are not applicable for equipment in standby.
- Enter "Out Of Service" (OOS) for data points or equipment that is not operating and is not available for operation (e.g., shutdown for maintenance) if required. Data limits are not applicable for equipment out of service. Circle all OOS entries in permanent red ink. Explain all OOS entries in the narrative section and the appropriate supervisor notified.
- Enter "No Reading Taken" (NRT) for data points which are inaccessible for monitoring. Circle all NRT entries in permanent red ink. Explain all NRT entries in the narrative section and the appropriate supervisor notified.
- If the reading is outside the specified minimum or maximum allowed values, then circle the reading in permanent red ink. All red circled items must have a corresponding entry in the appropriate narrative log or the narrative section of the round sheet, referencing the round sheet item number, indicating the probable cause and action taken.
- Personnel promptly report to the shift manager or appropriate supervisor those red circled data points specified on the round sheet that may have an impact on safe process/facility operation. Personnel report all other red circled data points at the completion of the rounds, but before the end of the shift in which they were recorded.

- The causes of abnormal readings are promptly investigated with supervisors becoming involved as appropriate. Prompt action should be taken to investigate the cause of abnormal or unexpected indications so prompt corrective action can occur.
- Personnel initiate prompt corrective action, as appropriate, per direction of supervision and in accordance with facility operating procedures for out of specification data.
- If parameter units listed on a round sheet are not the same as indicated on an instrument (e.g., the instrument is calibrated in units other than required by the round sheet - a differential pressure cell with a voltage output and the round sheet parameter is tank level in feet), then record the applicable measurement values from the associated operator aid or controlled conversion chart (Whenever possible, facility managers should make every effort to have process instruments calibrated in the desired units to eliminate the need for operator aids or controlled conversion charts). If the reading is outside the specified minimum or maximum allowed values, then circle the reading in red ink.
- Operators should believe their instrument readings and treat them as "accurate" unless proven otherwise. Operators should check other indications, if possible, when unexpected readings are observed.
- When malfunctioning or inaccurate instruments are discovered or process instruments are found to be out of calibration or past calibration due dates, they should be appropriately identified to prevent subsequent confusion and instrument and control personnel should be notified to effect repairs.

Procedure Verification and Validation

CIF operators, while not usually required to develop procedures, are called upon to support the development process by performing procedure verification and/or procedure validation. The procedure coordinator determines the V&V need based upon the following criteria:

- new procedures that involve the manipulation of systems or equipment and those that have potential to cause such manipulation require complete V&V
- revisions may require the entire procedure to be verified and validated, or only the revised sections or steps.
- revisions that affect the performance of the applicable procedure, such as a change in intent, technique, or sequential order of procedure steps require V&V
- revisions that have a significant change in the format or method of presentation (e.g., a revision resulting from implementation of major changes require V&V)
- the applicable box "Entire Procedure" or "Changes Only" marked to indicate validation scope on the Procedure Validation Checklist

Waiver of procedure validation is only allowed for minor changes to procedures that do not:

- involve or have the potential to cause manipulation of systems or equipment
- affect procedure intent or sequential order of steps
- significantly change the procedure format

Procedure verification is primarily a series of non-technical inspections performed by the procedure writers and their supervision.

Validation Methods

The walkdown method is the preferred method for the validation of procedures. The only exceptions are in cases where, due to ALARA, or safety considerations or facility status, equipment is inaccessible. The walkdown method involves user(s) of the procedure performing a step-by-step enactment of the actions detailed in the procedure with no changes to facility configuration or operational conditions. The actual facility equipment is addressed but the manipulation of the equipment is dramatized. The validator verbalizes the activity described in the procedure. This method verifies the following:

- Information contained in the procedure is adequate.
- Information contained in the procedure is understandable and easy to comprehend.
- The procedure is compatible with the facility configuration.
- The procedure is compatible with the specified manpower.
- The sequence of procedure steps is correct and efficient.
- The communication methods used in the procedure are adequate.

The Tabletop Method involves a review of the procedure using a talk-through process and a checklist of evaluation criteria. The review is usually performed in a conference room with the lead validator talking through the procedure and includes questioning by the V&V members to enhance the assessment. This method is selected only when equipment manipulated by the procedure is inaccessible where ALARA considerations, safety considerations, or facility status do not allow walkdown. This method verifies the following:

- Information contained in the procedure is adequate.
- Information contained in the procedure is understandable and easy to comprehend.
- The procedure is compatible with the facility configuration.

The sequence of procedure steps is correct and efficient.

PROCEDURE CHANGE ADMINISTRATION

Introduction

Procedure errors are routinely discovered both during the development process as well as during performance. Procedures need to be changed for a variety of reasons such as equipment modification, changing requirements, review and approval omissions, etc. This section addresses the procedure change process.

Procedure Changes

1.19	**DESCRIBE the types of procedure changes that are used in the CIF, and the general process for making the change**

There are three types of procedure changes used in the facility; Minor revisions, Immediate Procedure Changes (IPCs), and Procedure Change Requests (PCRs). If a change is needed quickly to continue work, an IPC is initiated. A PCR is submitted when the need for a new procedure or the need for the revision, cancellation, deactivation, or reactivation of an existing procedure has been identified

Minor Revisions

Minor revisions are used to incorporate non-technical changes. Minor revisions are not used if the change would:

- Increase the safety risk to personnel
- Alter a source document requirement
- Alter the purpose or scope of the procedure
- Eliminate any required reviews or approvals
- Alter the operating, technical, design, process, regulatory, or quality control requirements of a procedure

Immediate Procedure Change (IPC)

An IPC is generated for continuation of a procedure in progress or for critical activities as identified by management. An IPC cannot be used to change Emergency Operating Procedures (EOPs), Emergency Preparedness Implementing Procedures (EPIPs), the purpose or scope of procedures, to approve total rewrites of any procedure, or to approve new procedures. An IPC does not change the existing revision number on the modified procedure.

IPCs are of two types, Temporary Changes and Permanent Changes. Temporary IPCs are effective for no more than 60 days unless tied to a temporary modification, in which case the temporary IPC will be valid for the duration of the temporary modification, not to exceed 180 days. Permanent and Temporary changes shall not be combined in a single change. A new permanent IPC shall incorporate any existing permanent IPCs.

When the need for an immediate change is determined, the originator of the change shall enter the change on a PCR form, indicate the change as an IPC and deliver to shift management. Shift management shall review the request for adequacy, accuracy, and necessity. If the change is temporary, shift management shall identify the Temporary IPC expiration date. If the IPC is approved for one time only use, enter OTO for the expiration date.

IPC changes shall be made on a current copy of the affected procedure. Changes should be entered as typed text. If typing support is unavailable, it is permissible to enter hand written changes. The IPC approver is directly responsible for ensuring all changes (typed or hand written) are clear and legible and will remain so when reproduced. The originator shall draw a single line through the information to be deleted or changed and enter the change.

Prioritization of Procedure Changes

upon the criteria for the PCR, a priority is assigned when the PCR form is submitted. The criteria and priorities are identified in Table 2, *Procedure Change Request Priorities*.

Table 2

Procedure Change Request Priorities

Criteria		Priority
Technical Standard/Operational Safety Requirement	Impacts operability of equipment required by Technical Standards or Operational Safety Requirements	
Safety Analysis Report	Impacts operability of equipment required by Safety	

	Analysis Report	
Safety Evaluation Report	Necessary for compliance with an SER requirement	Priority 1 or 2
Safety Hazard	Prevents a significant personnel safety hazard	
Environmental Releases	Necessary to prevent and/or monitor radioactive or other environmental releases	
Facility Safety	Identified by senior management as essential for facility safety	
Support System	Impacts system with safety related functions specifically identified in the SAR, TSs, or OSRs	
Reliability	Impacts the functional capabilities of equipment required for continuous, long-term reliable operation	Priority 1 through 5
Shutdown	Impacts equipment which, if not available, would necessitate a forced shutdown	
Critical Support Service	Required for day-to-day operations	
Fire Protection	Compliance with fire protection requirements and commitments	
Security	Compliance with Security requirements and commitments	
General Material Condition	Preservation and improvement of material condition of equipment, facilities or components in use during normal operation	Priority 3 through 5
Non-Critical Work	Required to support routine activities that are not operational necessities (includes productivity improvements)	
Non-Process Related	Corrective and preventive maintenance on non-process related equipment	

Other	Does not meet any identified criteria	

An explanation of the priorities is as follows:

- Priority 1 - Work activities which have an immediate impact on safe plant operation and must be completed on a priority basis. These items shall be pursued in the most expeditious manner.
- Priority 2 - Work activities that impact safe plant operation and need to be worked on a schedule basis. These activities do not have an immediate impact on safe plant operation.
- Priority 3 - Work activities that do not impact safe plant operation but are important to operation on a day-to-day basis.
- Priority 4 - Activities that neither affect safe plant operation nor day-to-day operation but are desired to be performed.
- Priority 5 - Work activities that do not impact safe plant operation, are not important for day-to-day operation, and are fill-in work only. These activities may or may not be performed without consequence to the facility.

CIF PROCEDURE IMPLEMENTATION PLAN

Procedure Improvement Plan

1.10	DISCUSS **the major paths forward as presented in the CIF Procedure Improvement Plan (PIP).**

The Procedure Improvement Plan is part of an integrated management systems approach to operation. This integrated management systems approach is designed to help set the boundary structure for safe facility operation, contribute to a savings in operating cost by implementing a "just needed" approach to procedure development. This plan is integrated with training of personnel, completion of the facility, and achieving Level 1 schedule milestones. As part of the upgrade of systems and people, this procedures improvement plan will detail the steps necessary to bring the CIF procedures into full compliance with DOE and Site procedure requirements and to serve as a model for the incinerator industry.

Summary of current procedure status

Most CIF procedures are currently undergoing significant improvements. These can be categorized as:

- Technical Improvements (Accuracy)
- Usable Improvements (Validation)
- Command and Control Improvements (Hold Points)
- Format Improvements (2S Manual Compliance)
- Identification of Regulatory Requirements/Issues (Permit Limits, TSRs, Lessons Learned, etc.)

The CIF facility management has prioritized these improvements and has scheduled the essential improvements to be complete prior to full-scale operation. The categories of improvement and order of priority to complete include:

- Ensuring technical accuracy and usability
- Identify permit and regulatory steps
- Incorporating Radcon hold points
- Incorporating supervisory and independent verification hold points
  Establishing two-column format for technical procedures
- Incorporating lessons learned and SIRIM information

Procedure Philosophy

The CIF procedure system is based upon good procedure writing practices and principles as found in DOE Order 5480.19 and WSRC *Conduct of Operations*. Procedures will be developed for all anticipated normal evolution's and abnormal conditions necessitating use of a response procedure. Technical procedures will be based on facility design basis documentation, and will be written so that all of the user group will be able to perform the activities as written. Abnormal and Emergency response procedures will be developed in accordance with guidelines found in 2S.
Development of specific procedures will take into account the:

- Complexity of the task
- Frequency of performance
- Skill and experience of the user group
- Consequences of inadequate task performance

Knowledge Cube

A myriad of technical requirements govern CIF operations. Requirements can be found in a host of Federal, State, and Site documents. Accurately capturing all of these requirements and flagging technical and response procedures, training materials, TSRs, SAR, and other facility programs when requirements change will be a valuable tool. The concept of the "Knowledge Cube" depicts the system CIF will use to ensure regulatory, safety and permit requirements are properly identified and incorporated into facility programs.
Information from the SAR, Lessons Learned, DCFs, and industry/facility operating experience will be fed into the cube. Data will be sorted through an integrated data base and inserted into the affected documents through the revision process. The data base that will contain the source requirements found in the "knowledge cube" will be developed and implemented prior to startup.

Procedure Improvements

Now that the Procedure Improvement goals have been established the CIF procedures will undergo certain improvements and enhancements. The following is brief description of those changes.

Compatibility with Authorization Basis Documents, Permits, and other Regulatory Requirements

While development of the "knowledge cube" is underway, the procedures group has brought in several experts to assist in reviewing and evaluating authorization basis documents, permits and TSRs. This independent review and identification of requirements are incorporated into procedures prior to startup.

Setpoint Control

It is essential that all devices which generate signals and cause some alarm or control function output be properly controlled. The Alarm Setpoint Document (ASD) is the document that serves as the control point for all device setpoints. Prior to CIF startup, the ASD will be certified as correct, and controlled as a design basis document. Any changes to plant alarm or output setpoints will be controlled as a plant design change through the DCF system. Control of the ASD will allow the removal of alarm setpoints from the Alarm response Procedures (ARPs). Operators will be expected to verify actual alarm setpoints by referring to a controlled copy of the ASD.

Configuration Control

CIF is in the process of upgrading and modifying existing systems. It is essential that all facility changes be evaluated for procedure impact. They must be evaluated prior to operation in order to minimize the number of IPCs generated due to faulty procedure steps. The CIF Procedures Group will evaluate all design changes to ensure that the procedures have been properly assessed for impact.

Radcon Steps and Hold Points

CIF procedures will evaluated to ensure radiological control hold points have been established associated with minimizing the spread of radiation or contamination.

Management Hold Points

Management hold points will be assigned to critical evolution's that have a potential to cause radiological releases, the spread of contamination, damage to equipment, or injury to plant

personnel. The intent of these hold points is to allow the Shift Manager/Supervisor to review current plant conditions and assess the feasibility of continuing with an evolution.

Management hold points will be incorporated into procedures for the following plant evolution's or conditions:

- Plant mode changes
- Heat up or cool down of rotary kiln or secondary combustion chamber
- Offgas system startup or shutdown
- Waste feed startup or shutdown
- Igniting or extinguishing burners
- Loading or unloading of solid or liquid wastes
- Tank material transfers

While not presently in use, at some time in the future the procedures maintained in the facility will be color coded according to types. Table 1, *Procedure Type Color Coding*, identifies this classification scheme.

Table 1, Procedure Type Color Coding

Procedure Type	Binder Color
General Operating Procedures (GOP)	Light Green
Standard Operating Procedures (SOP)	Yellow
Alarm Response Procedures (ARP)	Red
Emergency Operating/ Abnormal Operating Procedures (EOP/ AOP)	Pink
Surveillance Procedures (SUR)	Silver
Operator Rounds (OR)	Blue

LESSONS LEARNED

Introduction

Non-conformance to the principle of procedure compliance can result in damage to equipment, personnel or environmental release. The following two examples are presented to show how important the requirement for procedure compliance is at CIF.

Generic Case Study

At the ITP facility, operators were attempting to perform a routine reading of instrumentation on one of the liquid waste tanks. The operator recognized that before the reading could be taken, a negative ventilation was required in the tank to prevent contamination. The operator requested permission from supervision to start a fan to verify the negative pressure. Supervision granted permission for the fan startup but the operator realized that he had the wrong procedure. Rather than return to the control room to retrieve the correct procedure, the operator relied upon memory to energize the breaker and start the fan. However, the operator did not remember to open the dampers required to establish the ventilation flow path. Fortunately, no equipment damage occurred.

The incident occurred because the operator chose to rely upon memory rather than retrieving the correct procedure. The operator actions were not in adherence to the Conduct of Operations guidelines and requirements the mandate the use of written procedures when operating process equipment. Failure to adhere to the guidelines increases the potential for equipment damage, personnel injury and environmental releases.

CIF Case Study

The CIF began preparations for heatup to perform the Pre-Trial Burn (PTB) event on or about 7 November, 1995. During preliminary preparations, water was observed leaking from the Ash Receiving Tank onto the floor of the Ash Handling Area. After further investigation, it was determined that the source of the water was condensation for the steam supply to the crossover duct expansion joints draining back through the Secondary Combustion Chamber (SCC) into the Ash Receiving Tank. During the preliminary phase of the heatup process, General Operating Procedure 261-GOP-01, *Process Startup from Cold Standby to Warm Standby*, was initiated. The purpose of the procedure is to align the CIF systems and place them in a suitable configuration to perform a gradual and integrated startup of the incinerator and auxiliary systems.

Steam System

One of the systems that is aligned in support of the startup process is the Steam System. The Steam System receives steam from H-Area and supplies process steam for heat exchangers, building heating, scrubbing Offgas, and other auxiliary uses. One of the steam supplies is remotely reduced to 30 psig and then locally reduced to 6 psig for use in the expansion joints on the crossover duct from the SCC to the Offgas Quench Vessel. The expansion joints are supplied with steam for minimizing the effects of thermal shock as well as for removing residue and particulate from the duct. During the steam system alignment, the 6 psig steam to the expansion joints was incorrectly aligned. The step or series of steps that align the steam to the expansion joints on the crossover duct was performed while the incinerator was still at ambient temperature conditions prior to heatup. This is not called for until the incinerator begins to heat up and attains a temperature of 500°F.

Ash Handling System

During the day, the Ash Receiving Tank received a high level alarm. The tank was manually drained down until the high level alarm cleared. The instrument power panel that provided 120 Vac power for the high level alarm was removed from service and tagged out for maintenance. After maintenance was completed, the instrument power panel was not returned to service and therefore the high level alarm was not received when the condensate began to accumulate from the crossover duct steam condensation.

Conclusion

Several lessons are to be learned from this incident. One of the most common and continual concerns we have is procedural compliance. Blind compliance to procedures is not acceptable. The operators and technical staff must understand what is to be accomplished before they begin to perform the required steps of procedures. This problem could have been avoided by a more thorough review of the procedure during the technical review and approval process of the procedure development cycle.

Another aspect of the compliance issue relating to this incident is verbatim compliance. As a part of the restoration of any lockout, systems are returned to normal or placed in a safe/required configuration for the plant mode of operations. An operator requested if the panel should have been returned to service but was informed that it would not be done at that time. Personnel should be aware of what is to be done prior to the performance of the procedures and steps as well as be aware of how the performance of the procedure will affect other portions of the facility. This will ensure that the procedure steps are performed correctly and in the proper sequence. This will result in the facility being operated in a safe and efficient manner.

All personnel, not just the operators stationed in the area where system status is documented and maintained, need to take responsibility for system status and the procedures that change plant configuration. If any of the personnel involved in the evolution had paid particular attention to the restoration of the lockout, the instrument panel would have been restored to service and the high level alarm would have alerted the control room of the rising water level in the receiving tank.

Another aspect to be considered when viewing this event as well as many others complicated evolutionís we will perform in the near future is not to be in such a hurry as to lose sight of plant conditions. We all recognize the importance of what we are trying to accomplish and many of us are aware of the compressed time frame in which we have to complete Pre-Trial Burn, Trial Burn, ORR, Rad Ops, etc.. But our primary consideration must be safety; first, last and always. The feelings of pride and satisfaction we will have when we bring the facility to a fully operational mode will pale in comparison to the remorse and regret we will feel in the event of personnel injury, environmental release or equipment failure.

It should also be mentioned that more effective communications, regular surveillanceís and rigorous adherence to watchstanding principles and conduct could have, at least, minimized the severity if not prevented the occurrence of the incident.